



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103

February 28, 2000

Mr. Michael J. Bayer
Chair, Army Science Board
2511 Jefferson Davis Highway, Suite 11500
Arlington, Virginia 22202

Dear Mr. Bayer:

I request that you conduct an Army Science Board (ASB) Summer Study on "Technical and Tactical Opportunities for Revolutionary Advances in Rapidly Deployable Joint Ground Forces in the 2015-2025 Era." The ASB members appointed should consider these Terms of Reference (TOR) as guidelines and may include in their discussions related issues deemed important or suggested by the sponsors. Modifications to the TOR must be coordinated with the ASB office.

I envisage that this work by the Army Science Board will also yield practical near term insights and opportunities that will assist the Army Leadership in focusing priorities for our limited research, development and acquisition accounts to create the most combat effective and cost efficient rapidly deployable joint ground forces for the 2015-2025 period.

The study should be composed of four parallel investigations leading to an integrated set of recommendations. This work is to be guided by, but not limited to, the following lines of inquiry:

Team 1 - Operations. To the goal of achieving rapidly deployable forces with dominant maneuver supported by precision fires, look at those opportunities which offer the greatest pay off for quickly deploying forces which feature a highly flexible array of full spectrum force capabilities. Focus on combat operations, accounting for capabilities required to achieve systems overmatch as a critical component of overall force effectiveness both for initial entry into a theater of operations and to enable operational maneuver within the theater once operations begin. The array of systems and force capabilities should assure future commanders retain battlefield freedom of maneuver and are not denied tactical options for offensive or defensive schemes of maneuver. While combat operations are the focus, the relevance of the capabilities to stability and support operations, such as peace operations, should be assessed. Consider, but do not limit your investigation to the following opportunities:



a. Look at the feasibility of synchronizing the requirements for the Future Combat System, the Joint Transport Rotorcraft (JTR), and Comanche to provide revolutionary tactical and theater mobility and increased strategic mobility. If feasible, what are the assumed tactical benefits of this union?

b. Assess the capabilities gained by exploiting robotic air and ground systems as reconnaissance/surveillance, attack systems, and other functions. Which force capabilities or platforms appear to benefit most from this relationship?

c. Propose a suite of smart munitions/sensor combinations in our direct fire and indirect fire forces that offer the most cost effective investment and the most decisive outcome in expected scenarios.

d. Determine those areas of the force that demand robust 24 hours a day, 7 days a week manning, and portray the benefits of various manning arrangements.

e. Identify the optimal organizational structures that best exploit future information technology.

f. Determine the need for or utility of an Advanced Theater Transport (ATT) to replace the C-130 to support the operational capability and systems described above.

Team 2 – Sustainment and Support. To the goal of providing this force a support/sustainment capability with significantly reduced logistic burden, look at the opportunities in providing forces with significantly greater systems reliability (including mechanical, electronic, photonic reliability, etc.) along with graceful degradation and ultrareliability leading to simplified battlefield maintenance, repair and diagnostics/prognostics (including disposable/expendable components/systems), significantly smaller fuel and ammunition tonnage requirements, improved battlefield medical support, transport means (manned and unmanned), and remote services. Consider, but do not limit your investigation to the following opportunities:

a. Assess the opportunities to leave outside the theater significant logistic, intelligence, and administrative support, thereby reducing the force requiring in-theater support.

b. Assess the opportunities for advanced power plants that reduce the specific fuel consumption at least 25% per HP delivered.

c. Assess the logistic implications of the alternative families of smart munitions (as generated by Team 1).

- d. Exploit the opportunity for remote surgery (telemedicine) to reduce the number of in-country specialty surgeons.
- e. Assess the capability of the JTR to contribute to rapid medical treatment and evacuation along with other joint force options.
- f. Assess the opportunities to improve the Army's capability to conduct Near Shore/Logistics-Over-the-Shore operations.

Team 3 - Information Dominance. To the goal of providing this force Information Dominance through the provisioning of an advanced "central nervous system" to meet the needs of our forces and to deny the threat force basic information needs consider at least two perspectives. First is the broad, relatively global C4ISR focus that flows vertically from the Joint Task Force down through corps and divisions (as units of employment) all the way to units of action executing their tactical operations and tasks. The second perspective includes the time sensitive information at the local level that is dependent on rapidly changing battle command and control, "around the next hill/corner" situational awareness, and the needs at the tactical maneuver/support units and teams level - platforms and organic sensors centric. This assessment should consider both of these complementary perspectives. The objective of providing maneuver units a fundamental capability to expand their engagement envelopes to include short timeline, beyond line of sight and fleeting targets may provide a catalyst for this information dominance challenge. Look at capabilities which provide digital map location and terrain elevation data to support the needs of ground maneuver commanders and precision fires employment, yield superior situational awareness of friendly and threat forces, instantaneous critical logistic asset status and location, theater missile threat detection, location and ongoing tracking of any threat weapons of mass destruction, and deny the threat forces this basic capability using both lethal and non-lethal means. Provide forces with timely, reliable information updates (unit and platform level updates) to facilitate tactical and support mission planning and rehearsal during deployment and on the move. As technology opportunities are assessed, it is essential that future forces operating in urban and complex terrain environments have robust, high confidence situation awareness, across the full spectrum of military operations. Consider, but do not limit your investigation to the following opportunities.

- a. Assess the suite of National and Theater sensors: overhead, air breathing, manned and robotic necessary to provide the desired data and information.
- b. Assess the technological opportunity to provide necessary bandwidth for data, voice, and video requirements for the force.

- c. Ascertain the requirements to deny the threat the necessary voice and data information he requires to effectively employ his forces.

- d. Assess the ability to link all systems through an inter-netted system of non-line-of-sight communications.

Team 4 - Training. To the goal of ensuring that these deployed forces have an organic capability to train to peak effectiveness within the theater of operations, look at opportunities for providing embedded training devices for crew, team and small unit training; the ability to deliver training into the theater using "distance learning" opportunities; the ability to provide "mission rehearsal" capabilities as required; and the ability to permit staff and command training with sensitive intelligence products. These investigations should be grounded in a vision of a future training strategy for both collective and individual training which leverages a proper mix of live, virtual and constructive training and which is supported by an information based system of systems architecture. Consider, but do not limit your investigation to the following:

- a. Assess the command and control systems' ability to provide necessary alternative mission analyses and threat scenario generation using all source intelligence.

- b. Assess the opportunities for embedding necessary training system requirements in the Future Army Land and Aviation Vehicles, to include mission rehearsal capabilities. This assessment should include embedded joint training and real time cooperative training with units and systems both in and out of theater from alert through deployment and employment.

- c. Assess the training requirements necessary to train the sensor to shooter precision fires employment.

- d. Look at the need for and feasibility of using distance learning techniques to train portions of the force with out-of-Theater resources.

- e. Investigate approaches which can link training and operational system capabilities to facilitate the creation of realistic conditions and which can store, fuse, filter and disseminate relevant information to a variety of training system components.

Study Support. Sponsors of this study are GEN John M. Keane, Vice Chief of Staff; GEN John N. Abrams, Commanding General, US Army Training and Doctrine Command; GEN John G. Coburn, Commanding General, Army Materiel Command, and LTG John J. Costello, Commanding General, Space and Missile Defense

Command. LTG Paul J. Kern is the ASA(ALT) cognizant deputy and LTG Randall L. Rigby, Jr., is the TRADOC cognizant deputy.

Schedule. The study panel will initiate the study immediately and conclude its effort at the report writing session to be conducted July 17-27, 2000, at the Beckman Center on the campus of the University of California, Irvine. As a first step, the study co-chairs will submit a study plan to the sponsors and the Executive Secretary outlining the study approach and schedule. A final report will be issued to the sponsors in September 2000.

Sincerely,

A handwritten signature in black ink, reading "Paul J. Hooper". The signature is written in a cursive style with a large, stylized "P" and "H".

Paul J. Hooper
Assistant Secretary of the Army
(Acquisition, Logistics and Technology)